HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

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PATENT APPLICATION

ATTORNEY DOCKET NO. 200315134-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Randy L. Hoffman

Confirmation No.: 8192

Application No.: 10/799,325

Examiner: Thien F. Tran

Filing Date: March 12, 2004

Group Art Unit: 2811

Title: SEMICONDUCTOR DEVICE

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on June 29, 2006.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month $120	☐ 2nd Month $450	☐ 3rd Month $1020	☐ 4th Month $1590

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of $ 500. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

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Date of facsimile:

Typed Name: Sarah L. Reinhard

Signature:

Respectfully submitted,

Randy L. Hoffman

By

Edward J. Brooks III

Attorney/Agent for Applicant(s)

Reg No. : 40,925

Date : August 18, 2006

Telephone : (612) 236-0120

Docket No.: 200315134-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/799,325
Appellants:	:	Randy L. Hoffman, et al
Filed:	:	March 12, 2004
TC/A.U.	:	2811
Examiner:	:	Thien F. Tran
Title:	:	Semiconductor Device

APPEAL BRIEF

MS APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir or Madame:

This brief is presented under 37 CFR § 41.37 in support of an appeal from a Final Office Action of June 13, 2006 regarding the above-identified application. Notice of the Appeal was filed under 37 CFR § 41.31 on June 29, 2006. This brief is accompanied by the fee set forth in 37 CFR § 41.20(b)(2), as described in the accompanying TRANSMITTAL OF APPEAL BRIEF.

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I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

II. RELATED APPEALS AND INTERFERANCES

The related application number 10/799,838 is presently under appeal. The application was filed on March 12, 2004, with the title "Semiconductor Device". The first listed inventor is Randy L. Hoffman. The Primary Examiner is Long Pham of Art Unit 2814.

The related application number 10/799,961 is also presently under appeal. The application was filed on March 12, 2004, with the title "Semiconductor Device". The first listed inventor is Randy L. Hoffman. The Primary Examiner is William F. Kraig of Art Unit 2815.

III. STATUS OF CLAIMS

A. Total Claims: 1-40

B. Current Status of Claims:

1. Claims canceled: 2, 10, 15-27, 31-33, and 35
2. Claims withdrawn: 4-6, 12-13, and 37-39
3. Claims pending: 1, 3, 7-9, 11, 14, 28-30, 34, 36, and 40
4. Claims allowed: none

5. Claims rejected: 1, 3, 7-9, 11, 14, 28-30, 34, 36, and 40

6. Claims objected to: none

C. Claims on Appeal: 1, 3, 7-9, 11, 14, 28-30, 34, 36, and 40

IV. STATUS OF AMENDMENTS

Appellant has not filed any amendment to the application subsequent to the Final Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A. Independent claim 1

Independent claim 1 recites a semiconductor device including a drain electrode, a source electrode, a channel contacting the drain electrode and the source electrode, a gate electrode, and a gate dielectric positioned between the gate electrode and the channel. (Page 2, line 21, through page 4, line 19; page 5, lines 16-28; and Figures 1A-1F, 2, and 3). With regard to the channel, the channel includes a single-phase crystalline gallium oxide Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N. (Page 1, lines 26-33; page 5, line 30, through page 6, line 3; page 8, lines 31-33).

Independent claim 1 is argued together with dependent claims 7-8.

B. Independent claim 9

Independent claim 9 recites a semiconductor device including a drain electrode, a source electrode, a means for carrying electron flow to electrically couple the drain electrode and the source electrode, a gate electrode, and a gate dielectric positioned between the gate electrode and the channel. (Page 2, line 21, through page 4, line 19; page 5, lines 16-28; page 6, lines 22-31; and Figures 1A-1F,

2, and 3). The means for carrying electron flow includes a means for a channel that includes a means for a single-phase crystalline form of Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N. (Page 1, lines 26-33; page 5, line 30, through page 6, line 3; page 8, lines 31-33).

Independent claim 9 is argued together with dependent claim 14.

C. Independent claim 28

Independent claim 28 recites a semiconductor device formed by steps that include providing a drain electrode, providing a source electrode, providing a precursor composition including one or more compounds of a gallium precursor compound, depositing a channel of gallium oxide from the precursor composition to contact the drain electrode and the source electrode, providing a gate electrode, and providing a gate dielectric positioned between the gate electrode and the channel. (Page 2, line 21, through page 4, line 19; page 5, lines 16-28; page 9, line 26, through page 11, line 11; page 12, line 5, through page 13, line 12 and lines 23-25; and Figures 1A-1F, 2, and 3). With regard to the precursor composition, the precursor composition includes a means for a channel that includes means for a single-phase crystalline form of Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N. (Page 1, lines 26-33; page 5, line 30, through page 6, line 3; page 8, lines 31-33).

Independent claim 28 is argued together with dependent claims 29-30.

D. Independent claim 34

Independent claim 34 recites a display device including a plurality of display elements configured to operate collectively to display images, where each of the

display elements includes a semiconductor device configured to control light emitted by the display element, and where the semiconductor device includes a drain electrode, a source electrode, a channel contacting the drain electrode and the source electrode, a gate electrode, and a gate dielectric positioned between the gate electrode and the channel and configured to permit application of an electric field to the channel. (Page 2, lines 13-15 and line 21, through page 4, line 19; page 5, lines 16-28; page 6, lines 7-14 and lines 22-31; page 7, lines 26-33; page 15, line 30, through page 16, line 9; and Figures 1A-1F, 2, 3, and 5). With regard to the channel, the channel includes a single-phase crystalline gallium oxide Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N. (Page 1, lines 26-33; page 5, line 30, through page 6, line 3; page 8, lines 31-33).

Independent claim 34 is argued together with dependent claim 40.

E. Dependent claims 3, 11 and 36

Claims 3, 11 and 36 are argued together.

1. Claims 3 and 36 are dependent claims from independent claims 1 and 34, respectively. Dependent claims 3 and 36 each recites that the gallium oxide includes a single-phase crystalline form of β-Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N. (Page 1, lines 26-33; page 5, line 30, through page 6, line 3; page 7, lines 2-4; page 8, lines 31-33).

2. Claim 11 is a dependent claim from independent claim 9 and recites that the means for a channel includes a single-phase crystalline form of β-Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge,

Sn, and N. (Page 1, lines 26-33; page 5, line 30, through page 6, line 3; page 7, lines 2-4; page 8, lines 31-33).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether or not claims 1, 7-9, 14, 34, and 40 are unpatentable under 35 USC § 103(a) over Cillessen et al. (US 5,744,864) (Semiconductor Device Having a Transparent Switching Element) in view of Ueda et al. (reference 7R) (Anisotropy of Electrical and Optical Properties in β-Ga_2O_3 Single Crystals).

B. Whether or not claims 3, 11, and 36 are unpatentable under 35 USC § 103(a) over Cillessen et al. (US 5,744,864) in view of Ueda et al. (reference 7R).

C. Whether or not claims 28-30 are unpatentable under 35 USC § 103(a) over Cillessen et al. (US 5,744,864) in view of Ueda et al. (reference 7R), and further in view of Official Notice.

VII. ARGUMENT

A. Arguments against the rejections under 103(a) over the Cillessen reference in view of the Ueda reference.

1. Arguments regarding claims 1, 7-9, 14, 34, and 40.

a. **For claims 1, 7-9, 14, 34, and 40, the cited references do not describe, teach, or suggest each and every claimed element.**

Appellant respectfully submits that the Cillessen reference appears to describe, "The dopant atoms are attuned to the covalent oxides used. Dopant atoms such as Sb, F, or Cl may thus be used when SnO_2 is the covalent oxide, Sn dopant atoms for In_2O_3, and Ga dopant atoms for ZnO as the oxide." (Col. 2, lines 25-29; also see col.5, lines 54-60). Cillessen does not show any gallium oxides doped with

any atoms; thus, Cillessen does not show a single-phase crystalline gallium oxide Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N. In support of Appellant's just-stated submission, the Examiner stated, "Cillessen et al. does not explicitly disclose the gallium oxide (Ga_2O_3) being a single-phase crystalline form of β-Ga_2O_3 doped with Sn or N." (June 13, 2006, Final Office Action).

Appellant respectfully submits that the Ueda reference appears to describe, "[t]he anisotropy of electrical and optical properties in β-Ga_2O_3 single crystals." (Page 935, col. 2, lines 6-7). Ueda does not show a single-phase crystalline gallium oxide Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N. Ueda appears to teach away from doping β-Ga_2O_3 single crystals by describing "the band gap of the undoped semiconductor". (Emphasis added; page 935, col. 1, lines 3-4).

In the preceding Final Office Action, the Examiner contradicted the just-cited quotation by stating, "Ueda discloses β-Ga_2O_3 single crystals doped with N or Sn as a transparent conducting oxide." Scrutiny by Appellant revealed that no such dopants were disclosed in the Ueda reference. Appellant found that the only mention of Sn in Ueda is in the introductory paragraph, which states that "Transparent conducting oxides (TCOs), such as indium-tin-oxide (In_2O_3:Sn, ITO), ZnO:Al, and SnO_2:F are the key materials in optoelectronic devices." (Page 933, col. 1, lines 1-3). Hence, Ueda does not disclose using Sn in an oxide with Ga as a covalently bound constituent, a dopant, or in any other form.

Appellant respectfully submits that there is no description of using nitrogen for any purpose in the Ueda reference. Appellant only finds a solitary capital N (the abbreviation for nitrogen) used in one place in Ueda, where the reference states, "The Hall coefficient R_H and the carrier concentration N of the specimen". (Page 933, col. 2, lines 29-30). Appellant respectfully submits that using an italicized capital N for the carrier concentration of the specimen does not disclose using nitrogen in a single-phase crystalline gallium oxide Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N.

In contrast, Appellant's independent claims 1 and 34, as previously presented, recite, "a channel contacting the drain electrode and the source electrode, wherein the channel includes a single-phase crystalline gallium oxide Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N".

Support for the amendment of claims 1 and 34 to recite the specified dopants is found in the specification of the present disclosure as originally filed. Specifically, the specification recites, "Doping of one or more of the layers (e.g., the channel illustrated in Figure 2) may also be accomplished by the introduction of oxygen vacancies and/or substitution of aliovalent elements such as Si, Ge, Sn, F, and N." (Page 8, lines 30-33). Although, as previously stated, Cillessen describes no dopants to be used with any gallium oxides, Appellant removed F from the group of dopants recited in claims 1 and 34, as previously presented, in the interest of advancing prosecution of the present application.

In addition, independent claim 9, as previously presented, recites:

> means for carrying electron flow to electrically couple the drain electrode and the source electrode, wherein the means for a

channel includes means for a single-phase crystalline form of Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N;

As such, Appellant respectfully submits that each and every element of independent claims 1, 9, and 34, as previously presented, is not described, taught, or suggested in the Cillessen and Ueda references, either independently or in combination. Accordingly, Appellant respectfully requests reconsideration and withdrawal of the 103 rejection of independent claims 1, 9, and 34, as previously presented, as well as those claims that depend therefrom.

B. Arguments against the rejections under 103(a) over the Cillessen reference in view of the Ueda reference.

1. Arguments regarding claims 3, 11, and 36.

a. **For claims 3, 11, and 36, the cited references do not describe, teach, or suggest each and every claimed element.**

In addition to the reasons provided above relating to the absence of relevant disclosure in the Ueda reference with regard to doping of a single-phase crystalline form of Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N, Appellant believes that dependent claims 3, 11, and 36, as previously presented, are patentably distinct from the Cillessen and Ueda references for at least the following reasons.

As presented in the previous section of the present Appeal Brief, Appellant respectfully submits that Cillessen does not show any gallium oxides doped with any atoms; thus, Cillessen does not show a single-phase crystalline gallium oxide β-Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge,

Sn, and N. In support of Appellant's just-stated submission, the Examiner stated, "Cillessen et al. does not explicitly disclose the gallium oxide (Ga_2O_3) being a single-phase crystalline form of β-Ga_2O_3 doped with Sn or N." (June 13, 2006, Final Office Action).

Although the Ueda reference principally deals with the β-Ga_2O_3 form of gallium oxide, as do dependent claims 3, 11, and 36, as previously presented, Ueda does not show β-Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N. As presented in the preceding section, Appellant respectfully submits that Ueda does not disclose use of any dopant with β-Ga_2O_3, much less the use of Sn and N as the dopants asserted by the Examiner in the June 13, 2006, Final Office Action. Moreover, Appellant respectfully submits that Ueda actually teaches away from using dopants with β-Ga_2O_3 by describing "the band gap of the undoped semiconductor" when referring to Ga_2O_3. (Emphasis added; page 935, col. 1, lines 3-4).

In contrast, Appellant's dependent claims 3, 11, and 36, as previously presented, each recites, "a single-phase crystalline form of β-Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N."

As such, Appellant respectfully submits that each and every element of dependent claims 3, 11, and 36, as previously presented, is not described, taught, or suggested in the Cillessen and Ueda references, either independently or in combination. Accordingly, Appellant respectfully requests reconsideration and withdrawal of the 103 rejection of dependent claims 3, 11, and 36, as previously presented.

C. Arguments against the rejections under 103(a) over the Cillessen reference in view of the Ueda reference, and further in view of Official Notice.

1. Arguments regarding claims 28-30.

a. **For claims 28-30, the cited references do not describe, teach, or suggest each and every claimed element.**

In addition to the reasons provided above, Appellant believes that claims 28-30, are patentably distinct from the Cillessen and Ueda references and the Official Notice for at least the following reasons.

With regard to independent claim 28, as previously presented, the claim recites in part:

> providing a precursor composition including one or more compounds of a gallium precursor compound, wherein the means for a channel includes means for a single-phase crystalline form of Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N;

The Examiner used the Cillessen and Ueda references as bases for a 103(a) rejection as described in the preceding sections of the present Appeal Brief and perceived claims 28-30 as having "product by process limitations". The Examiner went on to apparently take Official Notice by stating, "it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process" claim, and not the patentability of the process." (June 13, 2006, Final Office Action).

In support of the preceding statement, the Examiner "particularly" relied on *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). *In re*

Thorpe states, in relevant part, "If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."

As discussed in the preceding sections with regard to independent claims 1, 9, and 34, Appellant respectfully submits that the Cillessen and Ueda references do not disclose "a single-phase crystalline form of Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N", as recited in part in independent claims 1, 9, and 34, as previously presented. Appellant respectfully submits that the Official Notice does not cure the deficiencies of the Cillessen and Ueda references. As a result, the final product of independent claim 28 is not made obvious by Cillessen and Ueda, either individually or in combination. Hence, Appellant respectfully submits that the failure of Cillessen and Ueda to describe, teach, or suggest the element of "providing a precursor composition including one or more compounds of a gallium precursor compound", as recited in independent claim 28, as previously presented, becomes relevant as another element distinguishing the present disclosure from Cillessen and Ueda.

As such, the Cillessen and Ueda references, in view of the Official Notice, either independently or in combination, do not describe, teach, or suggest each and every element in Appellant's independent claim 28, as previously presented. Accordingly, Appellant respectfully requests reconsideration and withdrawal of the 103(a) rejection of independent claim 28, as previously presented, as well as those claims that depend therefrom.

CONCLUSION

Appellant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner and/or members of the Board are invited to telephone Appellant's attorney Donald J. Coulman at (541) 715-1694 to facilitate this appeal.

At any time during the pendency of this application, please charge any additional fees or credit overpayment to the Deposit Account No. 08-2025.

CERTIFICATE UNDER 37 C.F.R. §1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: **MS APPEAL BRIEF-PATENTS** Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450, on this 18th day of August, 2006.

Sarah L. Reinhard
Name

Sarah L. Reinhard
Signature

Respectfully Submitted,
Randy L. Hoffman, et al.

By their Representatives:
BROOKS & CAMERON, PLLC
1221 Nicollet Avenue, Suite 500
Minneapolis, MN 55403

Atty: Edward J. Brooks III
Reg. No.: 40,925

8/18/2006
Date:

VIII. CLAIMS APPENDIX

1. (Previously Presented) A semiconductor device, comprising:

a drain electrode;

a source electrode;

a channel contacting the drain electrode and the source electrode, wherein the channel includes a single-phase crystalline gallium oxide Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N;

a gate electrode; and

a gate dielectric positioned between the gate electrode and the channel.

2. (Canceled)

3. (Previously Presented) The semiconductor device of claim 1, wherein gallium oxide includes a single-phase crystalline form of β-Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N.

4. (Withdrawn) The semiconductor device of claim 1, wherein gallium oxide includes a mixed-phase crystalline form from compounds selected from the group consisting of GaO, Ga_2O, Ga_2O_3, and mixtures thereof.

5. (Withdrawn) The semiconductor device of claim 4, wherein gallium oxide includes GaO:Ga_2O:Ga_2O_3 in a ratio of A:B:C, wherein A, B, and C are each in a range of about 0.025 to about 0.95.

6. (Withdrawn) The semiconductor device of claim 1, wherein gallium oxide includes an amorphous form from compounds selected from the group consisting of GaO, Ga_2O, Ga_2O_3, and mixtures thereof.

7. (Original) The semiconductor device of claim 1, wherein the channel includes being positioned between and electrically coupling the drain electrode and the source electrode.

8. (Original) The semiconductor device of claim 1, wherein at least one of the drain electrode, the source electrode, the channel, gate electrode, the gate dielectric, and combinations thereof are substantially transparent.

9. (Previously Presented) A semiconductor device, comprising:

a drain electrode;

a source electrode;

means for carrying electron flow to electrically couple the drain electrode and the source electrode, wherein the means for a channel includes means for a single-phase crystalline form of Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N;

a gate electrode; and

a gate dielectric positioned between the gate electrode and the channel.

10. (Canceled)

11. (Previously Presented) The semiconductor device of claim 9, wherein the means for a channel includes a single-phase crystalline form of β-Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N.

12. (Withdrawn) The semiconductor device of claim 9, wherein the means for a channel includes means for forming a mixed-phase crystalline form from compounds selected from the group consisting of GaO, Ga_2O, Ga_2O_3, and mixtures thereof.

13. (Withdrawn) The semiconductor device of claim 9, wherein the means for a channel includes means for forming an amorphous form from compounds selected from the group consisting of GaO, Ga_2O, Ga_2O_3, and mixtures thereof.

14. (Original) The semiconductor device of claim 9, wherein at least one of the drain electrode, the source electrode, the channel, gate electrode, the gate dielectric, and combinations thereof are substantially transparent.

15-27. (Canceled)

28. (Previously Presented) A semiconductor device formed by the steps, comprising:

providing a drain electrode;

providing a source electrode;

providing a precursor composition including one or more compounds of a gallium precursor compound, wherein the means for a channel includes means for a single-phase crystalline form of Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N;

depositing a channel of gallium oxide from the precursor composition to contact the drain electrode and the source electrode;

providing a gate electrode; and

providing a gate dielectric positioned between the gate electrode and the channel.

29. (Original) The semiconductor device of claim 28, wherein depositing the channel includes:

vaporizing the precursor composition to form vaporized precursor composition; and

depositing the vaporized precursor composition using a physical vapor deposition technique.

30. (Previously Presented) The semiconductor device of claim 29, wherein the physical vapor deposition technique includes one or more of dc sputtering, rf sputtering, magnetron sputtering, and ion beam sputtering.

31.-33. (Canceled)

34. (Previously Presented) A display device, comprising:

a plurality of display elements configured to operate collectively to display images, where each of the display elements includes a semiconductor device configured to control light emitted by the display element, the semiconductor device including:

a drain electrode;

a source electrode;

a channel contacting the drain electrode and the source electrode, wherein the channel includes a single-phase crystalline gallium oxide Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N;

a gate electrode; and

a gate dielectric positioned between the gate electrode and the channel and configured to permit application of an electric field to the channel.

35. (Canceled)

36. (Previously Presented) The display device of claim 34, wherein gallium oxide includes a single-phase crystalline form of β-Ga_2O_3 with dopant selected from a group consisting of oxygen vacancies, Si, Ge, Sn, and N.

37. (Withdrawn) The display device of claim 34, wherein gallium oxide includes a mixed-phase crystalline form from compounds selected from the group consisting of GaO, Ga_2O, Ga_2O_3, and mixtures thereof.

38. (Withdrawn) The display device of claim 37, wherein gallium oxide includes $GaO:Ga_2O:Ga_2O_3$ in a ratio of A:B:C, wherein A, B, and C are each in a range of about 0.025 to about 0.95.

39. (Withdrawn) The display device of claim 34, wherein gallium oxide includes an amorphous form from compounds selected from the group consisting of GaO, Ga_2O, Ga_2O_3, and mixtures thereof.

40. (Original) The display device of claim 34, wherein at least one of the drain electrode, the source electrode, the channel, gate electrode, the gate dielectric, and combinations thereof are substantially transparent.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

Appellant submits that no copies currently exist of decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of section 41.37 with regard to Application Number 10/799,838, Application Number 10/799,325, and Application Number 10/799/961.